County of Los Angeles
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SACHI A. HAMAI
Interim Chief Executive Officer

September 8, 2015

To: Mayor Michael D. Antonovich
Supervisor Hilda L. Solis
Supervisor Mark Ridley-Thomas
Supervisor Sheila Kuehl
Supervisor Don Knabe

From: Sachi A. Hamai
Interim Chief Executive Officer

RESPONSE TO ESTABLISHING A COUNTYWIDE CENTRALIZED ELECTRONIC HEALTH RECORD SYSTEM TO IMPROVE PATIENT CARE (ITEM #25; AGENDA OF APRIL 7, 2015)

On April 7, 2015, the Board directed the Interim Chief Executive Officer, the Chief Information Officer, County Counsel, the Directors of the Departments of Health Services, Mental Health and Public Health, Probation[1], and the Sheriff or designee, to report back in 90 days on integrating electronic health record systems into a single platform so that a unified record exists for each individual patient and so appropriate Los Angeles County (County) employees can have a single portal to access, share and update electronic health, mental health and public health clinical records in real-time. The report was to include a discussion of:

a) The financial and clinical benefits and drawbacks of a single unified County electronic health record system (EHR);
b) Whether integration should be limited to clinical information or whether the departments should also further integrate the claiming systems;
c) The ramifications, if any, of discontinuing or phasing out the use of any existing system built with federal or state funds; and
d) The feasibility of integrating all electronic health record systems into ORCHID, including the potential cost and timeline to do so.

[1] Although not originally included in the Board motion, input from the Probation Department is included in this report back given they have an electronic health record system.

BENEFITS OF A SINGLE UNIFIED COUNTY EHR

Implementing a single unified County EHR would allow the impacted departments to create a single longitudinal record, which is a record of the patient's health state across time (while each department uses different terms to describe the individuals they serve, e.g., consumers, clients, patients, we will refer to them as "patients" in this report). If a longitudinal record is pulled from a stand-alone EHR system, the patient's health state only reflects the information in that system. Although it is possible to compile a patient's data from separate EHRs and present them as a combined longitudinal record, that record relies on a number of factors to ensure it is reliable and it presents only a view of that patient across time that a physician would need to study thoroughly at the point of care. Having a single unified EHR in the County would allow for the longitudinal record to include data from any County department that delivered care to that patient and the data would be discrete and actionable. In this way, a clinician caring for a patient can receive real-time information from the system. Clinicians would be able to receive information about patients across departments, without having to rely on a single point-in-time compilation of records across disparate systems or additional work to query other electronic systems. It would also avoid the need to match their patient across multiple systems and avoid mismatches and identity errors. A single unified EHR would have the capability to avoid providing duplicative services (e.g. through public health and DHS), and allow for more accurate identification of patients at unusually high risk of poor outcomes or needing additional services, such as individuals with simultaneous medical and mental health conditions. Such real-time actionable data is key to clinical decision support and improving safety. For example, it would aid in checking for known allergies and duplicate, or conflicting, medications. Additional information about each department's EHR is included in Appendix I.

Healthcare delivery organizations who implement industry standard best practices use a single unified enterprise EHR. An enterprise EHR is structured not only to support the workflow of the clinicians delivering care, but to collect healthcare information in a manner supporting patient-centered care. This translates into one of the most important features of an enterprise integrated health record – the capture of healthcare information as discrete data within a single EHR database that is actionable. Clinical decision support on an enterprise EHR will allow County clinicians opportunities to improve the safety and quality of care delivered. The ultimate goal of clinical decision support is to "provide the right information, to the right person, in the right format, through the right channel, at the right point in workflow to improve health and healthcare decisions and outcomes" (Osheroff et al. 2004)[2]. As healthcare complexity increases,

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[2] Osheroff, J.,Rifer, E., Sittig, D., & Jenders, R. (2004). *Clinical decision support implementers' workbook. Chicago: HIMMS.*

the opportunity and ability to inject evidence-based clinical decision support become more important.

Patients can benefit from capturing patient health information in an EHR, but the information is most valuable if it can be aggregated with patient data from other sources to produce a single, longitudinal record that presents a complete picture of a patient's medical history. This record would include presenting complaints or issues, vital signs, allergies, symptoms, test results, medications, diagnosis treatments, physician/clinical notes (as allowed by HIPAA privacy rules), enabling treatment providers throughout the various care settings to quickly assess the patient accurately to provide specific treatment plans. A longitudinal record would also include lab, pharmaceutical, and imaging orders, as the majority of physical health clinical decisions involve this type of data. In addition to providing support for clinical decisions, longitudinal records comprised of data from various healthcare settings and systems could assist with creating central repositories of data to enable departments to monitor compliance with treatment guidelines, meet reporting requirements and identify best practices to improve care.

There are three ways for the County to achieve a longitudinal health record: 1) via a single unified EHR; 2) the transfer of data via an information hub; and 3) the transfer of data via a health information exchange (HIE)[3]. While these three approaches may allow for the creation of a longitudinal health record, the ability to create a seamless unified health record for patients served by the County would allow for the highest quality data and could have long-lasting physical and mental health benefits for the County's residents, as long as it can meet the requirements of each County department serving those patients.

DRAWBACKS OF A SINGLE UNIFIED COUNTY EHR

The benefits of a single unified EHR in the County must be weighed against the various drawbacks of implementing such a system. The drawbacks would require additional vetting and expertise to evaluate and to determine if the County would benefit from moving toward a single unified EHR. Significant drawbacks include:

- Time to implement – Given the intense amount of attention and resources the implementation of an EHR requires, it is estimated that the transition to a single unified EHR would be a multi-year process. For example, if a decision were made to migrate to ORCHID, DHS would first need to complete its ORCHID implementation in mid-2016 before they could support the work of bringing on another County entity. Beyond that, it is estimated that only one entity at a time

[3] Appendix II provides additional information on options 2 and 3.

could be transitioned to the system, likely starting with DPH Community Health Services given they currently do not have an EHR.

- Financial cost – It is estimated that the cost of transitioning to a single unified EHR and phasing out existing EHRs would be substantial and would not result in any near- or mid-term cost savings. The time, vendor professional services, subject matter experts, infrastructure needs, maintenance of dual systems during the implementation phase, and other unknown costs could be significant. Extensive additional information is needed to determine the financial cost of migrating existing systems to a single unified County EHR. For instance, while Probation and LASD are currently on Cerner systems, those systems are highly customized to meet their justice-related needs, not the day-to-day needs of a health care system, which would preclude a simple conversion to ORCHID, which is also a Cerner system. Such a conversion would likely result in substantial professional services costs from the vendor.

  A single unified County EHR might yield cost savings through shared hosting, maintenance, licenses and IT support costs over the long-term, but these will not outweigh the yet to be developed, unknown costs in the short- and mid-term associated with additional infrastructure, professional services, customizations, clinic downtime, staff training, additional internal IT implementation resources, and so on that would be required over a significant period of time. Such related costs should not be underestimated. Also, since Probation and LASD primarily used County funds for their EHRs and DMH indicates they do not have the ability to get additional State Mental Health Services Act (MHSA) funding to offset such conversion costs (discussed below), the cost to migrate these departments to ORCHID could potentially be fully borne by the County.

  Finally, depending on the new unified system's ability to meet all the business needs and workflow processes of each set of varied users, an analysis would need to be done to evaluate possible residual costs related to gaps in service needs or changes in workflows. For example, if the justice-related departments have to perform new and/or additional steps to utilize ORCHID versus their existing heavily customized EHRs, there could be unavoidable inefficiencies in their use of the new system.

- Differing needs for differing populations – The business needs of each department are quite different and unique, including varying patient care settings, the need to interface and develop cohesive clinical records with contract providers or community partners, the need to protect the information of the juvenile justice population, DMH's role as the Medi-Cal Local Mental Health Plan

(LMHP) administrator, and the need to integrate health/mental health and case management information. Further, the justice-related departments have a need to track the location/movement of inmates 24-7, from one location and/or service to another, not for episodic care, such as admittance/discharge from a hospital. Each department has different workflow processes for each of these scenarios and those would need to be considered in a single unified EHR.

- Enterprise system limitations – A single unified EHR, once established, may be difficult to tailor to a single department's emerging needs going forward.

- Patient identity issues – The shift to a single unified EHR would require the County to work through various issues related to patient identification. For example, LASD uses biometric scanning to track inmates and it could be difficult to reliably link their biometric identity to the sometimes unreliable identity data that exists in other departments. Additionally, LASD indicates that an inmate's Criminal Identification and Information (CII) number, assigned by the Federal Bureau of Investigation (FBI), is protected per the Criminal Justice Information Services (CJIS) Security Policy and cannot be shared or disseminated outside of the justice setting.

- Limited staff resources – Focus on a new EHR migration for departments with an existing system may divert IT, clinical and administrative staff away from their existing job duties, which may lead to detrimental outcomes for their day-to-day operations.

FEASABILITY OF INTEGRATING ALL EHRs INTO ORCHID

If the County decides to migrate departments to a single unified EHR, it would seem to make sense to shift to ORCHID. ORCHID is the only EHR system in the County that has the ability to support all of the clinical and operational functions of each department. IBHIS, DMH's EHR system, as a niche mental health EHR, is not capable of supporting the breadth of clinical practice within Probation, LASD, or DHS. Similarly, Probation and LASD's EHRs are not built for the clinical environment that DHS operates within.

Although ORCHID can likely be adapted to support the full breadth of clinical needs for these departments, and while the County's current contract with Cerner for ORCHID allows for other County departments to access certain set pricing, there are still many considerations to vet before making a definitive decision to migrate all County EHRs to ORCHID. It will be a substantial undertaking to properly identify and thoroughly address issues associated with the benefits, challenges, risks and total cost of ownership of an integrated ORCHID system for all involved departments. As indicated above, extensive

information is needed to more accurately identify costs related to infrastructure, professional services, licenses, maintenance, customization and other associated costs of migration from either a non-Cerner EHR or another Cerner instance onto ORCHID, as well as to develop a realistic timeline for performing such a conversion.

In order to provide a more detailed and accurate response regarding a single unified County EHR, each department would need to clearly document their business needs and verify that ORCHID could meet or be modified to meet those needs. The County does not currently have the requisite expertise or available staffing for a more formal assessment and will require the assistance of an IT consultant to properly assess feasibility, operational implications, and expected costs of such an implementation. The consultant could also further develop any list of drawbacks discovered in the course of its research of the unique needs of each department.

It should also be noted, the migration to a single unified EHR, if so decided, would be a multi-year endeavor that would require a different level of time and effort for each department. It is likely the migration would require continuous evaluation to ensure the decision points along the way are prioritizing a deliberate and well thought-out process, and not just one single upfront decision. The goal would be to develop a system that allows the County to provide the best service for the least dollars at each point along the way.

CLAIMING

Claiming refers to the system infrastructure, processes, and staff work required to claim reimbursement for services provided to patients via each department's electronic information system. There was consensus among the represented departments that it is possible to manage claiming without including it in a single unified EHR system. Additionally, given the complexities of claiming and the specific needs of each department and their associated reimbursement requirements, it is not clear that a single claiming system would be practical. Thus, the decision as to whether to integrate the clinical EHR systems should be made separately from a decision to integrate claiming functions into a single system. Additional information regarding claiming is provided in Appendix III.

PHASING OUT THE USE OF AN EHR BUILT WITH FEDERAL/STATE FUNDS

The ramifications of discontinuing or phasing out the use of an EHR built with federal or State funds were only considered for IBHIS as the Board motion did not contemplate the phase-out of DHS' ORCHID, and Probation and LASD did not use federal or State funding for their systems.

IBHIS was purchased and has been implemented to date through a combination of State MHSA Information Technology funds, federal meaningful-use incentive payments and other DMH funding. If the Board decided to discontinue the use of IBHIS, there is no information about whether State MHSA funds would need to be repaid or whether additional MHSA funds would legally be able to be used to support a new system. County Counsel is reviewing these issues to provide a more definitive response. With regard to federal meaningful-use incentive payments, it does not appear that there would be an issue with these funds, as they are tied to a provider's use of an EHR, not the EHR system itself. County Counsel will continue to review this issue.

NEXT STEPS

Given the need to further evaluate specifics around the benefits and drawbacks of a single unified EHR in Los Angeles County, we will engage IT consultant services to prepare a formal assessment of the feasibility of integrating all County EHRs into ORCHID, including the clinical and operational benefit, potential cost, and timeline of potential integration. The County will request that the IT consultant also survey what other counties have done with their EHRs and claiming systems to ensure that best practices are considered when providing a recommendation.

The CEO will work with the CIO to secure an IT consultant and to assemble a multi-departmental ORCHID Assessment Team (Team) comprised of IT, clinical, business and claiming subject matter experts, to evaluate clinical, business, software and total cost of ownership related to a possible migration to ORCHID. The Team will develop specific goals, objectives and timelines for a well thought-out strategy that can more thoroughly address the issues posed in the Board motion and more thoroughly evaluate the feasibility of migrating to ORCHID. Specifically, the analysis should focus on whether ORCHID can meet the behavioral health and LMHP administrative requirements of DMH, as well as the distinct business needs of LASD and Probation. County Counsel will also more thoroughly address any possible ramifications of phasing out any systems that have been funded with State or federal funds, which could be a critical data point in decision making. We anticipate providing a progress report to your Board in January 2016.

If you have any questions or require additional information, please contact me, or your staff may contact Mason Matthews at (213) 974-2395 or mmatthews@ceo.lacounty.gov.

SAH:SK
MM:EB:bjs

Attachment

c: Executive Office, Board of Supervisors
Sheriff
County Counsel
Chief Information Officer
Health Services
Mental Health
Probation
Public Health

090815_HMHS_MBS_EHR

Appendix I: Electronic Health Record System Background

Currently, four County Departments have implemented EHRs—DHS, LASD, Probation and DMH. DHS, LASD and Probation are currently on Cerner Corporation (Cerner) EHRs, while DMH is utilizing a Netsmart solution. Although DHS, LASD and Probation all acquired Cerner solutions, each was purchased at a different point in time and via different Board-approved contracts and each system has been heavily customized with different workflows and processes to suit each department's clinical and business needs. Additionally, the Probation EHR was implemented in accordance with a settlement agreement with the U.S. Department of Justice (DOJ).

The following is a summary of the existing EHR systems currently operational in the County:

- **DHS' Online Real-Time Centralized Health Information Database (ORCHID)**: ORCHID is a Cerner solution using the internet and an industry standard secure Citrix web-based software that has been modified to meet the inpatient/outpatient business and clinical needs of DHS. The implementation of ORCHID began in 2014 and will be completed in March 2016. To-date, DHS has used a combination of federal meaningful use incentive payment dollars and existing DHS funding (no net County cost) to pay for the ORCHID implementation. Three of the six "Clusters" have successfully implemented ORCHID (Harbor UCLA and surrounding Ambulatory Care Network (ACN) facilities, MLK Outpatient Center and surrounding ACN facilities and LAC+USC with its surrounding ACN facilities) which constitutes 75 percent of all DHS clinical care on the enterprise standardized ORCHID system.

- **LASD's Jail Health Information System (JHIS):** JHIS is a Cerner solution that uses the internet and an industry standard secure Citrix web-based software that has been modified to meet the clinical and business needs of LASD's jail setting. By design and policy, JHIS can only be accessed on-site at specific LASD locations and customization includes an interface with the internal Automated Jail Information System (AJIS), including the use of biometric scanning for patient tracking and EHR record retrieval. JHIS was implemented in 1998 and is utilized to track the delivery of health care services and maintain a centralized clinical data repository of all inmates. LASD/DHS oversee an Urgent Care Center (UCC) onsite at Twin Towers Correctional Facility and enter clinical notes into JHIS. DHS also provides specialty services and inpatient care services for inmates at the LAC+USC Jail Ward and DHS uses ORCHID for these services. Additionally, DMH treats clients in the jail setting and DMH clinicians enter notes into JHIS for their jail clients. DPH provides limited services in the jails, including 1) TB screening, diagnosis, treatment, case management and consultation services for inmates which is documented in JHIS, 2) in-custody substance use disorder treatment programming which is documented by DPH Substance Abuse Prevention and Control in a web-enabled system hosted by ISD that allows for data exchange with other departments, as needed; and 3) HIV testing, STD screening and transitional case management, documented in multiple electronic platforms, including HIV Casewatch, STD Casewatch and in the HIV testing database. To-date, LASD's JHIS has been funded through a combination of Inmate Welfare Funds generated through the sale of commissary goods in the jail system and County funding.

- **Probation's Electronic Medical Record System (PEMRS)**: PEMRS is a Cerner web-based solution that has been modified to meet the business and clinical needs of Probation, including an interface with their Probation Case Management System (PCMS). PCMS includes information related to a minor's detention status, admission, movement/transfer and other non-clinical information that should be maintained confidentially[1]. DMH clinical staff provide probation

[1] While a juvenile's clinical record can be shared between clinicians for clinical treatment purposes and continuity of care per Health Insurance Portability and Accountability Act (HIPAA) and Confidentiality of Medical Information Act (CMIA), California's Welfare and Institutions Code (WIC) 827 prohibits the disclosure of information identifying a youth's status as a probationer and also restricts the access to the juvenile "case file." Since the clinical and the

youth with care in the camps and halls through their Juvenile Justice Mental Health (JJMH) staff and DHS provides healthcare services to the youth through Juvenile Court Health Services (JCHS) staff. Probation does not directly provide any clinical care to minors in their custody. PEMRS was implemented in 2011 as a DOJ requirement and is used to store and maintain electronic medical records for all detained minors in the care and custody of the County. To date, Probation has used internal County funding to pay for its PEMRS implementation and has not received state, federal or any other source of funding for their system.

- **DMH's Integrated Behavior Health Information System (IBHIS)**: IBHIS is a Netsmart Corporation web-based software solution that was implemented in 2012. IBHIS has been implemented in 121 of 131 of DMH's Directly Operated (DO) Providers. Those remaining sites are either Jail Mental Health or Probation sites. Currently, in the jails and probation camps/halls, DMH staff enter data into two systems, pending a final determination on how these programs will implement a final system solution. DMH staff enter clinical information into JHIS and PEMRS and also re-enter limited clinical information into their existing Legacy System (LS) for claiming and workload documentation purposes. To-date, DMH has used Mental Health Services Act (MHSA) Information Technology Funds, federal Meaningful Use incentive payments and other DMH IT funding to pay for its IBHIS implementation.

- **DPH**: DPH does not have an EHR system, but intends to implement ORCHID for its Community Health Services clinics, subject to Board approval and the identification of funding. DPH is working with Gartner Consulting to develop a roadmap for its EHR implementation, including the infrastructure, staffing, and processes that will be necessary for success and the assessment should be completed by Fall 2015. Gartner has provided high-level cost estimates for ORCHID adoption, and DPH will incur additional costs to staff the implementation and system support. DPH will work with DHS, County Counsel, and CIO to refine the cost estimate. DPH indicates the possibility of some revenue generation with the implementation of an EHR given that they will able to capture essential data elements to claim for certain services for which they are unable to claim now. DPH has identified some funding within existing resources to pay for a portion of the anticipated cost, but would still need to identify additional funding to offset the entire system cost.

- **Jail Health Services (JHS):** JHS encompasses services provided by LASD, DMH, DHS, and DPH. DMH is currently discussing a proposed interface of IBHIS with the LASD and Probation EHRs for mental health clinical data, which could possibly commence in late 2015 or early 2016, pending a decision on a final EHR system solution. Additionally, on June 9, 2015, the Board approved the integration of jail health services under the DHS, which will require additional discussion on how to organize the EHR systems to best meet the needs of coordinated patient care provided by the departments. Therefore, this will not be considered in this report.

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juvenile case files are interfaced into PEMRS to meet Probation's business needs, the County needs to carefully address information sharing involving probation youth.

Appendix II: Alternatives to Using ORCHID and/or a Single Unified County EHR

The County could opt to acquire a new unified health record system and migrate all current County departments with EHRs to a new EHR system. The County could go down the path of developing an integrated unified system from scratch and build it to meet the various needs and specifications of the various departments. This option did not seem feasible as the County has already invested tens of millions of dollars and countless hours to launch ORCHID. Given that ORCHID seems to have the ability to be converted into a unified system for the County, the option to discontinue its use and acquire a new system for the County was not pursued.

Further, two available alternatives to a single unified County EHR were reviewed:

1. *A Cerner "hub" that would connect the County's Cerner and non-Cerner EHRs* – All three installations of Cerner in the County, currently at DHS, Probation, and LASD are completely separate and independent "instances" that do not currently share data. In order to aggregate patient data from each Cerner instance and create a more complete picture of a patient's medical history, the County could implement Cerner's interoperability functionality known as the Clinical Exchange Network (also known as the Resonance Hub). The Resonance Hub shares Continuity of Care Documents (CCD) [2] and Transition of Care (ToC) documents that are PDF documents and therefore, generally non-actionable data. The Hub also offers some limited ability to pull discrete data and share it between Cerner systems (this option is not available for sharing between a Cerner system and non-Cerner system). The ORCHID agreement, approved by the Board in November 2012, includes language that allows all County Cerner instances to share information via the Resonance Hub with no per-transaction charge. The Resonance Hub can also exchange information with non-County EHRs, such as the Martin Luther King, Jr. Community Hospital (MLKCH) Cerner instance and DMH's IBHIS. DMH has been working with its IBHIS vendor, Netsmart, on a proposal to integrate IBHIS with the Resonance Hub to exchange clinical information with the other County instances of Cerner, but as noted above, the Resonance Hub does not provide the ability to share discrete, actionable data with a non-Cerner system. Netsmart has done this before elsewhere, but will face the standard challenges to maintain interfaced products. Due to these limitations, the Hub would not replace the granularity of an integrated, single unified data structure that would be present in a single unified EHR.

   The pre-requisite to allow County Cerner instances to exchange information via the Resonance Hub is that all instances be on the most updated software platform. DHS' ORCHID is updated to the most recent software version for those clusters that have gone live. Probation's PEMRS only recently upgraded to the most up-to-date software version in Spring 2015; however, due to the limitations of WIC 827, another technical modification needs to be explored to mask juvenile patient information and the soonest Probation could share information is by the end of 2015. LASD's JHIS is scheduled to be upgraded and available to share information by December 2015. Once all instances are live and on the same software version, the County could implement the Hub to share select information between Cerner instances via CCD's, which will contain general patient information, such as medication, allergies and other pertinent data relevant to their care. Data sharing using the Resonance Hub does not happen automatically—it can only occur upon the submission of a query from one of the participating systems to the Hub. That query will result in the generation of a CCD that can eventually be uploaded into the querying department's EHR as a PDF (non-structured/non-discrete data). Clinician feedback on this query functionality indicates that this can be a delayed process that greatly limits clinical usefulness. The uploaded information does not directly become part of the patient record; instead, it is only

[2] See Appendix IV.

viewable and if a decision is made to incorporate it into a patient's health record, it would transfer in as a "screen shot" and not be integrated into the various viewable data fields in the system. While the ease of implementation and cost of this alternative are benefits, the need to query the information and the fact that the information is not fully consumed into the receiving department's medical record are considered major drawbacks of this alternative.

2. *An HIE that could share data between County and non-County EHRs from any vendor* – Another available option for sharing data among disparate health providers and systems is through an HIE, such as the Los Angeles Network for Enhanced Services (LANES). The County has been working with a public/private organization, LANES, to establish an HIE in Los Angeles. This has largely been driven by the County's need to share data with numerous non-County partners, such as the Community Partners (CPs) to assist with the provision of outpatient primary care services as part of DHS' empanelment for primary care. LANES is planning to go-live by the end of 2015 with a limited set of DHS facilities and Community Partner clinics. While the County will continue to pursue this option due to the need to have a viable HIE in Los Angeles County to connect to non-County providers, drawbacks are similar to those of the Cerner Resonance Hub option above, in that this is a query based option that is not yet designed to be fully consumable into the receiving EHR. While it is possible to transmit discrete data via an HIE and utilize that data in an actionable way, the basic framework for LANES at this time is to initially provide basic data sharing among DHS and non-County physical health providers.

Neither of these options would achieve the same results as a single unified EHR. While information exchange is possible in the near future within the existing Cerner instances residing with DHS, LASD and Probation, sharing through the Resonance Hub and/or an HIE will not create a single County-wide platform for a unified record for each individual patient, nor will it allow the staff using the systems in each department the ability to have a single portal to access, share and update electronic clinical records in real-time. Employees will log into their own system, submit a query and receive information for view and the document can be incorporated into the patient record in their own system. The data is not actionable and the granularity of clinical data can be compromised at each interface point, so although information sharing can be achieved, the quality of data is believed to be greater when it resides within one system.

These alternatives could play a role in improving the integration of health care data in the County and improve the coordination of care for County clients and patients in the future. Therefore, these alternatives will be considered as part of the assessment we are recommended by completed to determine what role they can play in the Board's direction to evaluate a single unified EHR for the County.

Appendix III: Claiming

Claiming in the health/mental health setting, especially for the safety net population, is extremely complicated, with a need to have familiarity with various local and federal rules and guidelines. The ability for County departments to have reliable, accurate and robust claiming capability is of paramount importance. Each department's ability to maximize revenue generation for the various reimbursable services provided will be a key to their success in a post-ACA environment. Currently, claiming is handled differently throughout the County, either with integration of a separate claiming solution to an existing EHR or in a partially automated fashion with extracted data elements from the EHR used as the basis for claiming. If the Board approves the integration of the County's EHR clinical systems into ORCHID, County employees familiar with the Cerner EHR platform state that it integrates well with third-party claiming solutions. A brief description of each department's claiming scenario is included below:

- **DHS:** DHS' claiming solution is not a Cerner product and is interfaced to ORCHID. DHS is investigating technical options for its long-term claiming needs.

- **DMH:** Claiming has been fully implemented in IBHIS for all DO providers. One unique consideration is that DMH acts as the Medi-Cal LMHP administrator for the County on behalf of the State and as such, all of DMH's Contracted Legal Entities (CLE) must claim Medi-Cal reimbursement through DMH. As part of this process, in addition to submitting DO claims to the State for reimbursement, DMH must also process, pay, and then request reimbursement of payments for CLE claims from the State. Therefore, CLEs will always exchange administrative, clinical, and financial data with DMH via interfaces between their own EHR systems and whichever EHR or claims processing system DMH uses. To-date, four of 130 CLEs have interfaces with IBHIS for claiming. DMH will continue to rollout claiming to the remaining 126 CLEs; however, given the complexity of mental health Medi-Cal claiming, additional effort is needed to optimize DMH processes to ensure timely and accurate claims processing when the remaining CLEs go-live, which will likely occur by late 2016. DMH DO claiming is based on the integration of clinical documentation in IBHIS and claims processing module in IBHIS. If DO clinical documentation were shifted to ORCHID, an entirely new claims processing approach would be needed. An alternative approach to DMH CLE claiming may likewise require a viable alternative claiming approach in the absence of IBHIS. Regardless of any possible decision to migrate DMH from IBHIS to ORCHID, it is in the County's best interest to allow DMH to complete the rollout of claiming to the 126 remaining CLEs.

- **Probation:** PEMRS is a multi-department collaboration between DHS, DMH and Probation. PEMRS does not have a claiming module as claiming is currently done by DHS and DMH for a limited subset of Probation youth[3].

- **LASD:** JHIS does not currently include claiming functionality; however, LASD is scheduled to implement a Cerner claiming module in March 2017. Inmate patients are not currently eligible to receive Medi-Cal while in custody, but LASD is currently reviewing the possibility of billing private insurance, including the State Healthcare Exchange, also known as Covered California, for certain non-adjudicated inmate patients.

[3] Medi-Cal reimbursement is not permitted for in-custody patients and is only permitted for a small number of youth that have been released from custody and are awaiting Suitable Placement (SP). When a youth is awaiting SP or are in SP, they are still in the care, custody, and control of Probation, which can range from 7 to 90 days, with the average at about 30 days. After that timeframe, the youth will typically transition to a group home, foster home facility, or home family setting. During that transitional period, Probation is able to claim for health/mental health treatment.

Appendix IV: Sample CCD Document

Health Summary

Patient	TAMMY BUTLER		
Date of Birth	Jan 22, 1972	**Sex**	Female
Race	White	**Ethnicity**	
Contact Info	Primary Home: 209 SE SOMERSET DR LEES SUMMIT, MO 64063-1040, US Tel (Primary Home): (816)467-9853	**Patient IDs**	79847 2.16.840.1.113883.3.13.3.99.119.101.1
Preferred Language	eng		
Document Id	204A91C0-3B46-4680-A834-82FCE3174C63		
Document Created	Jul 28, 2015 17:23 CDT		
Performer (primary care physician)	Phil Shell, MD		
Contact Info			
Performer (primary care physician)	Bob Smith, MD		
Contact Info	Tel (Work Place): (816)777-9797		
Performer (primary care physician)	James Ahmad, MD		
Contact Info			
Performer (primary care physician)	Phil Heat, MD		

Contact Info	
Performer (primary care physician)	Ali Slimani, MD
Contact Info	
Performer (primary care physician)	Phyllis Robinson, MD
Contact Info	Tel (Work Place): (913)098-7654
Performer (primary care physician)	George Velianoff
Contact Info	
Performer (primary care physician)	Phil Sansale, MD
Contact Info	
Performer (primary care physician)	Jeremy Young, MD
Contact Info	
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Encounter(s)

7/22/15
Iyadat Noor meirheim 30 Helsinki, 00100 Finland 03404949498
Attending Physician: Fincham MD, Colin C

7/21/15
Iyadat Noor meirheim 30 Helsinki, 00100 Finland 03404949498
Attending Physician: Fincham MD, Colin C

7/18/15 - 7/18/15
Avondale Clinic 2800 Rockcreek Parkway Kansas City, MO 64117- US (816) 201-1024
Discharge Disposition: Home or Self Care
Attending Physician: Ahmad MD, James

7/14/15
Baseline West Medical Center 5276 Rockcreek Parkway Kansas City, MO 64117-2521 US 816-565-1853

7/8/15
BW Healthe Clinic 2342 75th Street Kansas City, MO 64115- (816) 555-4545

Attending Physician: Smith MD, Bob
Admitting Physician: Smith MD, Bob

Vital Signs

Most recent to oldest [Reference Range]:	1	2	3	4	5	6	7	8	9	10
Temperature Oral [35.8-37.3 degC]	37 degC (4/3/15 10:52 PM)	37.1 degC (2/18/15 6:53 AM)	38.2 degC *HI* (10/27/14 1:56 PM)							
Temperature Temporal Artery [36.3-37.8 degC]	38 degC *HI* (3/5/15 10:21 AM)									
Peripheral Pulse Rate [60-100 bpm]	83 bpm (4/3/15 10:52 PM)									
Respiratory Rate [14-20 br/mn]	16 br/min (4/3/15 10:52 PM)									
Blood Pressure [90-140/60-90 mmHg]	132/88 mmHg (7/8/15 5:56 PM)	130/86 mmHg (7/8/15 5:55 PM)	132/88 mmHg (7/8/15 5:53 PM)	130/86 mmHg (7/8/15 5:51 PM)	124/84 mmHg (7/8/15 5:47 PM)	120/64 mmHg (7/8/15 5:44 PM)	130/82 mmHg (7/8/15 5:27 PM)	124/68 mmHg (7/8/15 3:33 PM)	122/80 mmHg (7/8/15 3:27 PM)	112/60 mmHg (7/8/15 3:23 PM)

Mean Arterial Pressure, Cuff	77 mmHg (7/8/15 3:23 PM)	85 mmHg (4/3/15 10:52 PM)	102 mmHg (2/18/15 6:53 AM)	100 mmHg (11/6/14 4:06 PM)	111 mmHg (10/27/14 1:56 PM)	92 mmHg (10/21/14 1:40 PM)	102 mmHg (12/20/13 4:01 PM)

Problem List

Condition	Effective Dates	Status	Health Status	Informant
At risk of venous thromboembolus(Confirmed)[1]	4/24/15	Active		
COPD bronchitis(Confirmed)		Active		
Headache(| Confirmed |)(Confirmed)	2010	Active		
Hypertension(Confirmed)		Active		
Type 2 diabetes mellitus(Confirmed)	5/2/12	Active		

[1]Problem added by Discern Expert

Allergies, Adverse Reactions, Alerts

Substance	Reaction	Severity	Status
penicillin	Abdominal pain nausea diarrhea	Moderate	Active

Medications

amoxicillin 400 mg/5 mL oral liquid
5 mL, Oral, q12hr, X 7 days, # 70 mL, 0 Refill(s), 01/15/15 9:12:00 CST, called to pharmacy (Rx), Pharmacy OP Main
Start Date: 1/8/15
Stop Date: 1/15/15
Status: Completed

metFORMIN 1000 mg oral tablet
1 tabs, Oral, BID, # 180 tabs, 0 Refill(s), Pharmacy OP Main
Start Date: 5/2/12
Status: Ordered

Tylenol 325 mg oral tablet
1 tabs, Oral, q4hr, PRN, # 60 tabs, 0 Refill(s), 04/04/15 0:19:00 MSK, other reason (Rx), Pharmacy OP Main
Start Date: 4/4/15
Stop Date: 4/4/15
Status: Completed

Results

Hematology

Most recent to oldest [Reference Range]:	1	2	3
WBC [4.0-11.0 x10^3/mcL]	14.0 x10^3/mcL *HI* (11/3/14 8:21 AM)	11 x10^3/mcL (10/14/14 2:00 PM)	11 x10^3/mcL (12/30/13 10:14 AM)
RBC [3.80-4.80 x10^3/mcL]	3.40 x10^3/mcL *LOW* (11/3/14 8:21 AM)		
Hgb [12.0-16.0 %]	13.0 % (11/3/14 8:21 AM)		
Hct [37.0-47.0 %]	40.0 % (11/3/14 8:21 AM)		
Platelet [150-400 x10^3/mcL]	467 x10^3/mcL *HI* (11/3/14 8:21 AM)		
MCV [80-96 fL]	118 fL *HI* (11/3/14 8:21 AM)		
MCH [27.0-33.0 pg]	38.2 pg *HI* (11/3/14 8:21 AM)		
MCHC [31.0-36.0 %]	32.5 % (11/3/14 8:21 AM)		

RDW [11.8-14.1 %]	12.7 % (11/3/14 8:21 AM)
MPV [7.8-11.2 fL]	8.0 fL (11/3/14 8:21 AM)
Neutro Auto [42.0-75.0 %]	42.0 % (11/3/14 8:21 AM)
Lymph Auto [20.0-55.0 %]	25.0 % (11/3/14 8:21 AM)
Mono Auto [1.0-10.0 %]	4.0 % (11/3/14 8:21 AM)
Eos Auto [<=7.0 %]	6.0 % (11/3/14 8:21 AM)
Basophil Auto [<=1.5 %]	4.0 % *HI* (11/3/14 8:21 AM)

Chemistry

Most recent to oldest [Reference Range]:	1	2	3
Blood Glucose, Capillary [74-106 mg/dL]	9 mg/dL *LOW* (4/9/15 2:49 PM)	10 mg/dL *LOW* (4/8/15 1:12 PM)	
Glucose Random [80-120 mg/dL]	265 mg/dL *HI* (10/14/14 2:00 PM)	265 mg/dL *HI* (12/30/13 10:14 AM)	
Hgb A1c [4.0-6.0 %]	8.5 % *HI* (10/14/14 2:00 PM)	8.5 % *HI* (12/30/13 10:14 AM)	7.5 % *HI* (12/20/13 4:00 PM)
Chol [200.0 mg/dL]	210 mg/dL *HI* (10/27/14 2:06 PM)	260 mg/dL *HI* (10/27/14 1:47 PM)	
HDL [27-67 mg/dL]	35 mg/dL (10/27/14 1:47 PM)	53 mg/dL (12/20/13 4:00 PM)	

LDL [60-139 mg/dL]	135 mg/dL (10/27/14 2:06 PM)	150 mg/dL *HI* (10/27/14 1:47 PM)	126 mg/dL (12/20/13 4:00 PM)
Trig [40.0-160.0 mg/dL]	138 mg/dL (12/20/13 4:00 PM)		
LDL POC [60-0 mg/dL]	81 mg/dL *HI* (10/29/14 3:32 PM)		

Immunizations

Vaccine	Date	Refusal Reason
measles/mumps/rubella virus vaccine	1/5/10	
poliovirus vaccine, inactivated	4/12/10	
poliovirus vaccine, inactivated	1/5/09	

Procedures

No data available for this section

Social History

No data available for this section

Assessment and Plan

No data available for this section